MALARIA MOSQUITO ADDS TO DAMAGE OF COTTON BOLL WEEVIL

Anopheles Causing Great Loss in Labor and Crop Production Throughout the South—Results Show in Preliminary Study of a Malaria Infected Plantation.

The malaria mosquito is not only causing tremendous annual losses in farm labor and production in the South, but is indirectly increasing the destructiveness of the cotton boll weevil, according to statements of specialists of the United States department of agriculture. These statements follow a study of a mosquito-infected plantation in Louisiana made during the last cotton and corn crop season by specialists of the bureau of entomology as a preliminary to a more extended investigation of the effect of malaria on farm production and profits.

On this single farm the specialists found that the malaria mosquito so affected the workers that the equivalent of 7.39 weeks of work by adult labor were lost per family during the seasons when crops were under cultivation. This does not include the lessened efficiency of convalescents or the lack of interest and energy resulting from malarial illness.

The Louisiana farm selected for the experiment contains 3,540 acres, of which 1,800 acres was under cultivation and 1,740 acres was in swamp land timber. The natural conditions on the plantation, it is believed, prevail on nearly 200,000 square miles of farming land in the South. Of the tilled acreage about 1,600 acres were cultivated by tenant farmers who took three-fourths of their yield if they supplied mules, seed, implements, and feed, or one-half of their yield if the plantation owner supplied these items. The balance of the cultivated acreage was worked with day labor at one dollar per day.

The plantation physician stated at the beginning of the survey that fully 75 per cent. of the families on the plantation were afflicted with malaria and at least two members of every afflicted family had the disease in a serious form at some time during the crop season. Nine out of every ten patients in his practise he said were malaria subjects. A study of the records of the plantation show that 46 out of 64 families were treated for malaria by the doctor during the past season. This number is probably too low, the department's specialists believe, because many families try to avoid the cost of medical attendance, and the negro has a natural aversion to proper medical treatment.

Effect of Malaria in 12 Families.

The department's investigator made a detailed study of 12 families with the following results:

Number in family.	Location of house.	No. sick in family.	Total time lost on account of Malaria. Weeks
8	Near woods	8	11
8	Near woods and along Bayou	7	20½
7	Open field	3	6¾
3	Along Bayou	3	6
8	Near woods	6	7½
7	Near woods	2	2
2	Along Bayou	1	5
8	Open field	1	2
6	Along Bayou	5	15
8	Open field	1	2
2	Along Bayou	2	8
4	Open field	3	3
68		42	88¾

The number of cases in these families which reported sickness would indicate that there were 149 persons who suffered seriously from the disease in the total of 64 families. In these cases the loss of time involved represents only the severe cases. The number who have the disease in an inactive state or some other form is undoubtedly far in excess of these figures.

Loss of Time Through Malaria.

Presuming that the loss of 88.75 weeks for 12 families holds for the 46 infected families, the total loss of time would be 340 weeks for the 46 malarial families. The loss of time is based on the work of an adult. Members of the family between twelve and sixteen years of age are figured at one-half time, and those between eight and twelve at one-fourth. This loss of time figured at the rate of wages of one dollar per day would amount to $2,380. This does not include the actual loss for medical fees and medicine. As these people are tenant farmers, however, it is to be presumed that their labor is worth more to themselves and the plantation than that of the usual day laborer. As this loss of labor was distributed throughout the season, the actual loss to the plantation and to the tenant farmer would have to be figured on the effect on the crop of this loss of time spread over the crop season. The investigators were unable to do this during the past season. But in consequent investigations the actual per acre production of the malarial and nonmalarial farms will be contrasted so as to determine the actual effect of malaria on the crop. Inasmuch as malaria affects these people most seriously during the critical times of corn and cotton cultivation, it is probable that it directly lessens the production.

The loss of time figured is for actual incapacity on account of sickness, and does not include the loss of time by healthy members of the family in nursing the members who were ill. In one case observed by the investigator, the wife was suffering from a serious attack of malaria and the husband remained at home to take care of her. There were five children in this family who usually work with their parents in the field. These were all congregated in idleness about the house in spite of the fact that the work of picking cotton was in progress and the weather was most favorable. As a result, the entire time of this family of seven was lost through the illness of one member.

The loss of time figured is merely the time of actual incapacity and does not take into consideration the diminished strength, energy and interest of the patient when he is trying to work in the fields during his convalescence.

Effect of Malaria on Efficiency.

The manager of the property states that an estimate, based on actual loss of time, which would place the loss to the plantation owners from reduced production at $3,835, and to the tenants at $1,115, would be very low. This would mean that if the loss were prevented there would be an increased income of $24 per family for each of the 46 malarial tenant families together with the above increase in returns to the plantation. This manager is positive that 50 families, or possibly even as few as 40 families, without malaria could have produced as much as the 64 families under the malarial conditions that prevailed.

The manager of another plantation, which raises rice, states that the labor problem, because of malaria, is acute at the time of planting and during the harvest season. He says that "chills" are particularly serious during the harvest season, and that the labor force then becomes greatly reduced. In 1912 he had to go outside his district for hands and recruited 35 men. These men were all in healthy condition and worked well for two weeks. At the end of this time they began to have "chills," and before the end of the harvest 20 out of 35 were incapacitated for work. All these men returned to their homes. In 1913 the same man sought to recruit men from the same place to harvest the rice crop, but they refused to come. They stated that their physician advised them not to go to the rice fields. This physician informed the manager that these men who worked for him during the previous season returned to their homes unfit for work in the cane during the grinding season, and that he advised them not to go north to the rice fields. Another manager of a cane plantation also stated that men who had worked in the rice fields were unfit on their return home, because of malaria, to work in the cane fields.

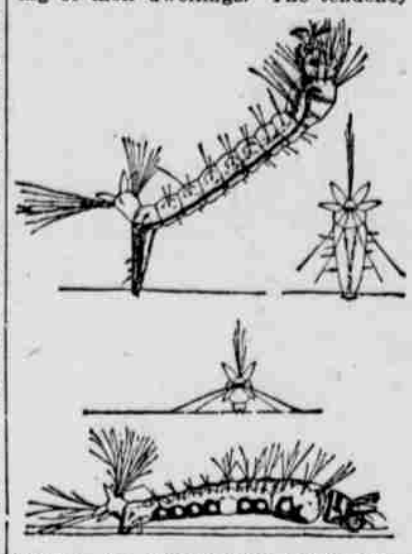
Malaria and Boll Weevil Injury.

An important observation made in this region by the investigator during the past season is that portions of the loss through injury by the boll weevil must be debited to malaria. Under normal conditions, the loss of time is not always so serious a matter, after the cotton crop is laid by and before time of picking. Under boll weevil conditions, however, both loss of time and decreased efficiency become more serious throughout the entire season. Failure to keep up with the crop, that is, to plant at the right time, to give the crop good cultivation, and to carry out control measures for weevil, gives the weevil an advantage over the plant. Many of the tenants are incapacitated by malaria at these critical times in the culture of the crop. The owner of one plantation said that the loss sustained through malaria far exceeds that of the boll weevil. In the case of the boll weevil, only one crop suffers; while in the case of malaria not only all crops but all agricultural development, as well, suffer.

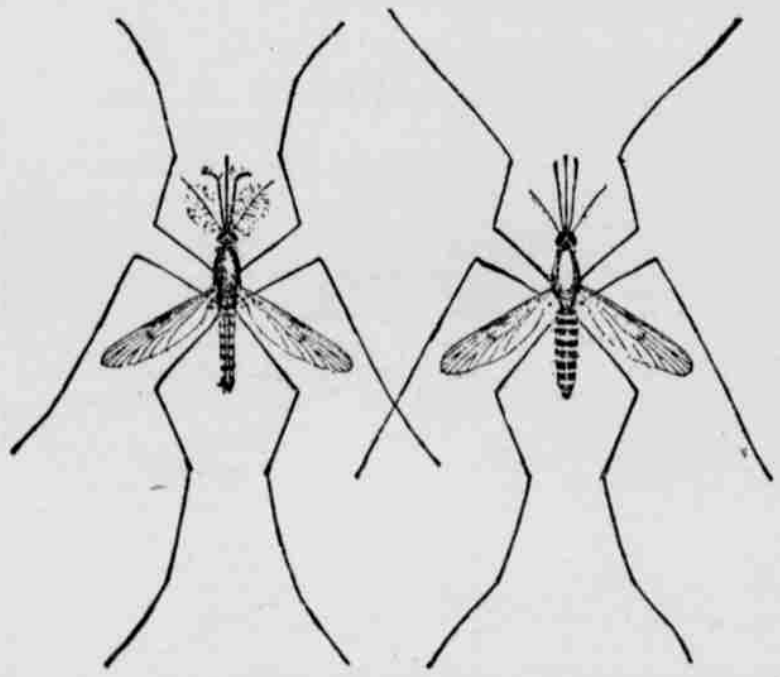
Suggested Remedy for the Loss.

The investigators found that the mosquito which was the cause of malaria on the plantation studied was the Anopheles quadrimaculatus Say, one of the species of Anopheles known to carry malaria. The Anopheles can be distinguished from other mosquitoes in the following way: The wings of this malaria-carrying mosquito are more or less spotted. The projections on either side of its beak are nearly as long as the beak itself. The easiest way to distinguish this mosquito is by observing its resting position. The Anopheles when biting has its beak and head and body in the same line at an angle from the skin. The nonmalarial mosquito, or Culex, keeps its body and wings parallel with the resting place and its beak is at an angle with its body, like the letter "L" laid on its side.

On the plantation in question, the malarial mosquito was found in the house and frequently in the mosquito-bars over the beds in the negro cabins. As a result of this study the investigators do not believe that the screening of negro cabins would be effective, because the negroes are careless about keeping mosquitoes out of their houses and the presence of a malaria-carrying mosquito screened in with a malaria subject would practically insure the infection of the entire family. Negroes are usually careless about going out after nightfall. Outside of work hours, on holidays, or at night, the negro farmer is apt to be at a lodge meeting, at the store, at church, in a saloon, or in the cabin of some friend—in fact any place except his own home. This habit of congregating at night outside of their own cabins would practically offset any protection to them through screening of their dwellings. The tendency of the negro to move about from place to place and his aversion to proper medical treatment, especially a prolonged course of quinine, renders the successful treatment of the disease with quinine impracticable. Reduction of malaria, the report concludes, depends upon the control of the mosquito-carriers of the disease. In the ultimate control, drainage will probably play the greater part.



Young or "Wiggletail" Mosquitoes, Showing Positions at Surface of Water of Malaria Wiggletail, Above, and Non-Malaria Wiggletail, Below. Enlarged Drawings Show the Difference in the Length of the Breathing Tubes.



The Malaria Mosquito, Made at Right and Female at Left. Note Spotted Wings and, in the Female, the Long Projections on Either Side of the Beak.

Typical Scene in the Swamp Region of the Mississippi Valley. If Drained This Land Would Be Worth $300 an Acre. Under Present Conditions It Produces Malaria Mosquitoes.

Opinions of Scientists.

The opinion of the two managers quoted are in line with the following references:

Prof. Glenn W. Herrick of Cornell, formerly state entomologist of Mississippi, in 1903, wrote:

"The South as a whole has given little thought to the tremendous role malaria plays in her industries, especially in agriculture. We have no idea of the loss occasioned by malaria in unfitting men for long or energetic hours of labor. The loss of energy and enthusiasm, the loss of interest in one's own efforts and success, all of which contribute enormously to the inefficiency of labor and cause the wealth-producing power, especially in agriculture, to fall far short of its normal capacity, is due in a marvelous and undreamed-of degree to that life-sapping disease, malaria. The man that is just able to 'crawl out of bed and drag around' is certainly not the man to accomplish an efficient and full day's labor. Because a man is at work is not necessarily a proof that he is actually adding to the sum total of his own wealth or to that of the state, and in a lesser degree does it prove that he is adding to the sum total of wealth, all of which he is capable. A man's general state of health has quite as much relation to his producing powers as the amount and kind of food he eats. And certainly there is no disease known to man that more insidiously undermines his constitution and lessens his ability to produce his full measure of wealth than malaria."

Dr. W. E. Hinds, state entomologist of Alabama (1912), estimates that 2,000,000 persons in the South are incapacitated because of malaria.

Prof. R. W. Harned, state entomologist of Mississippi says:

"In my opinion the malaria-transmitting mosquitoes are by far the worst pests in this state. I think that their damage is greater than that of the boll weevil and most of the other crop pests combined."

PAPA MIGHT HAVE GUESSED

No Doubt He Was Just as Badly Rattled as John Henry Some Two Score Years Ago.

John Henry was keeping company with Myrtle Marie, and when the father of the latter returned from the office one evening he was timidly approached by his pretty daughter.

"Papa," said the fair one, "did John Henry call on you this morning?"

"Yes," answered the paternal one, "but I couldn't make out much of what he said."

"Couldn't make out what he said!" returned Myrtle Marie, wonderingly. "What do you mean?"

"As near as I could understand," explained papa, "he said he wanted to marry me; that you had enough money to support him, and that we had always loved each other, so I told him to go home and write it out in plain English."

A Slight Error.

"My daughter is studying pyrography."

"Can she make mince pie with the other kinds?"

A Bad Case.

Knicker—Is he deeply in love?

Bocker—Yes, he thinks all the girls on the magazine cover look like her.

When a man hasn't anything else to do he loafs. A woman goes shopping.